

## **Minutes of the TAC Meeting on 9VAC25-740-105 of the Water Reclamation and Reuse Regulation**

January 9, 2008

The TAC meeting began at approximately 9:00 a.m. Dr. Ellen Gilinsky, Director of the DEQ-Water Quality Division, and Valerie Rourke, Water Reuse Coordinator in the Office of Land Application Programs greeted Technical Advisory Committee (TAC) members and opened the meeting. Ms. Rourke provided a brief update on the status of the final Water Reclamation and Reuse Regulation. Dr. Gilinsky briefly discussed the purpose of the meeting regarding language in new section 9VAC25-740-105 (section 105) of the regulation. During the public comment period on the draft regulation, DEQ received numerous comments opposing language (now in section 105) on the assumed percentages of nutrient (nitrogen and phosphorus) losses to state waters from irrigation reuse with non-BNR reclaimed water. Although the regulation is to be adopted, likely within the first quarter of 2008, only section 105 has been deferred for a future action by the State Water Control Board (Board). Dr. Gilinsky indicated that DEQ's intent to convene the TAC was to receive their input and suggestions on how to address language contained in section 105, which will then provide a basis for DEQ's recommendations to the Board regarding the fate of section 105. DEQ must provide its recommendations to the Board by no later than June 2008, at which time the Chairman of the Board indicated they would make a decision on whether or not to adopt section 105 with or without DEQ's recommendations.

DEQ staff framed the issues for discussion by the TAC. Many TAC members can agree that there are nutrient losses to state waters from irrigation reuse with non-BNR reclaimed water. However, this is true of other land-based treatment systems and is not always quantifiable. Can nutrient losses be mitigated? Yes. Several provisions have been included in the regulation to mitigate and minimize nutrient losses to state waters from irrigation reuse with reclaimed water, such as nutrient management plan requirements for bulk irrigation with non-BNR reclaimed water, supplemental irrigation requirements for all irrigation reuse, and others. Are the nutrient losses from irrigation reuse readily quantifiable? Such losses are difficult to measure in the field due to other confounding factors. Consequently, the losses are an estimate and therefore, why assume percentages of nutrient loss? Assuming there are some nutrients losses from irrigation reuse, even with all the provisions in the regulation to minimize and mitigate these losses, is this regulation the appropriate place to quantify and account for these losses or are there other vehicles for this, such as the Chesapeake Bay Model? The Chairman of the Board stated that he did not want to see the TAC focus on how to adjust debits and credits for assumed nutrient losses between agencies but to focus, instead, on the best available science to determine whether or not the assumed nutrient losses are appropriate to have in this regulation.

DEQ staff then solicited presentations or comments from the TAC. A representative from the Department of Conservation and Recreation (DCR) indicated that the agency understands the importance of and supports the concept of water reuse. However, DCR believes the nutrients would be transferred from a point source to a non-point source as part of an activity permitted by DEQ. Since many TAC members agree that there are nutrient losses from irrigation reuse, the question is what are they and how can they be accounted for. There are also broader implications that irrigation reuse of reclaimed water with high levels of nutrients will have for MS4s (Municipal Separate Storm Sewer Systems) and the responsibility a MS4 owner will have on what comes out of the outfalls of the MS4. Will a local government have authority to deny application of reclaimed water in a subdivision because they are violating their federal MS4 discharge permit? The nutrients from irrigation with reclaimed water contributes to the total nutrient load that the MS4 permittee discharges the MS4 outfall. Through their MS4 permit, localities are held responsible for pollutants that come out of their MS4

outfall and must, therefore, look at sources of pollution contributed to the MS4. We are likely to see nutrient standard in urban areas that will apply to MS4 discharges in the future.

Some TAC members expressed uncertainty of the relationship of MS4s to irrigation reuse of reclaimed water in light of the fact that reclaimed water would not be discharged or applied intentionally to any component of a MS4 system.

A TAC member representing Virginia Tech, Department of Crop and Soil Environmental Sciences provided technical background information on field conditions that will result in nutrients losses from fertilized crops. The greatest loss of nutrients applied to crop land or turf grass will be due mainly to drought. The crops or turf can not take up the nutrients without water. The nutrients will remain in the soil and are more likely to be lost to groundwater after the growing season from September to March. The advantage of irrigation with reclaimed water is that it provides a small amount of nutrients and water that will allow the crop or turf to take up the nutrients, thereby optimizing growth and minimizing nutrient loss. Irrigation with reclaimed water can increase nutrient use efficiency of a crop, such as corn, from 50-60 percent achievable with a nutrient management plan to 85-90 percent. The nutrients in reclaimed water are also available in a soluble form that unlike the nutrients in commercial granule fertilizers can immediately move into the soil and are less likely to be lost to storm water runoff.

DEQ staff added that permit conditions for irrigation reuse would also prohibit the application of reclaimed water to impervious surfaces and specifies that rate of application and time of year during which the reclaimed water can be applied to the irrigated vegetation.

Some TAC members indicated that it is not possible to control when home owners water or how much or little they fertilize their lawns. The DCR representative on the TAC stated that as a consequence, there will still be nutrient losses from urban lawns with irrigation reuse of reclaimed water and, therefore, assumed percent nutrient losses should be maintained.

One TAC member mentioned that the TAC had addressed the nutrient loss issue earlier and had agreed by majority upon no percentages of assumed nutrient loss from bulk irrigation reuse and a value of 5% assumed loss of both nitrogen (N) and phosphorus (P) for non-bulk irrigation reuse with non-BNR reclaimed water. Why not consider that in any recommendation going forward?

The DCR representative of the TAC indicated that the TAC did not achieve consensus on the percentage of assumed nutrient losses. DCR had provided revised percentages to DEQ staff based on expert opinion after the TAC's last meeting in December 2006. When requested by DEQ staff to provide more substantive data, research, etc., to support the percentages that they provided (and as included in section 105), the DCR representative recommended that DEQ invite the experts from whom DCR obtained its information to another meeting of the TAC. DEQ staff clarified that TAC members were to come prepared to this meeting with information they needed to support their position.

One TAC member inquired about the significance of the assumed percent nutrient losses from irrigation reuse with non-BNR reclaimed water. Both DEQ and DCR staff at the meeting stated that facilities with no nutrient allocation to discharge or expand must offset their nutrient load to surface waters if they have a point source discharge. Through DEQ's General VPDES Watershed Permit Regulation (9VAC25-820), such facilities must purchase nutrient credits in order to discharge their nutrients. The more a facility can divert its discharge to water reuse, the fewer the nutrient credits it will need to purchase for its discharged nutrient load. DCR is concerned that irrigation reuse of reclaimed water simply transfers the nutrient load to state waters from a point source to a non-point source without more accountability.

DEQ staff agreed that there is a transfer of load from point source to a non-point source, but does not know if it is significant. Furthermore, if it is significant, how should it be addressed? It may be appropriate to address the transfer in the Chesapeake Bay Model (Model). The Model acknowledges and accounts for many sources of nutrients to the Chesapeake Bay. If the Model identifies non-point source pollution from irrigation reuse with reclaimed water as a significant source, it can be further addressed by adjustments to TMDLs or overall tributary strategies. To report irrigated nutrient loads as going out an outfall pipe when they are not (as suggested in section 105) is setting a dangerous precedence. What does that mean for an applicant that installs a land treatment system for wastewater with no surface water discharge? Will the applicant need to obtain a VPA permit for the non-discharging treatment system and VPDES permit for a discharge that he doesn't have in order to account for non-point source nutrient losses? There is concern that this line of logic might be further applied to any land-based pollutant management activity, including biosolids and animal waste land application.

A TAC member suggested looking at the net benefit of irrigation reuse of reclaimed water compared to the net adverse affects before imposing assumed percentages of nutrient loss associated with irrigation reuse. The DCR representative on the TAC indicated that nutrient losses must be accounted for. This is in addition to nutrient management plan (NMP) requirements for bulk irrigation reuse with non-BNR reclaimed water.

Another TAC member suggested splitting the discussion of assumed percentages of nutrient loss from irrigation reuse with non-BNR reclaimed water between bulk vs. non-bulk irrigation. DEQ staff indicated that this idea may be worth further consideration. Perhaps bulk irrigation with non-BNR reclaimed water, which is required to have a NMP, should not have assumed percentages of nutrient loss. However, non-bulk irrigation with non-BNR reclaimed water that has no NMP requirement might have assumed percentages of nutrient loss.

Briefly discussed was the Virginia Tech study at VIP experimental site that compared nutrient leaching from irrigation with BNR reclaimed water with potable water on turf grass. The study showed that there was no difference in the amount of nutrients leached related to the type of water applied. Results from the VIP experimental site also demonstrated that at high application rates of BNR reclaimed water, there was little leaching of N & P. Therefore, the nutrient subcommittee on the TAC had achieved consensus that there would not be significant leaching losses of nutrients from irrigation with BNR reclaimed water. Why then is there a concern about irrigation with reclaimed water and non-point source nutrient loss?

The DCR representative indicated that additional P applied via irrigation with reclaimed water will increase nutrient losses via surface runoff and referred to an article on residential stormwater runoff. According to the article, lawn runoff could have higher concentrations of N & P than effluent from an advanced secondary treatment facility designed for nutrient removal. P concentrations in lawn runoff are an order of magnitude higher than that required to cause surface water eutrophication. The more pervious surface in an area, the more P is likely to runoff in stormwater.

The DCR representative on the TAC further stated that because it is not possible to make individual homeowners responsible for nutrients losses from non-bulk irrigation with reclaimed water, there must be some way to account for these losses in the regulation. Accounting for them in the Model is not in the best interest of the Chesapeake Bay. DCR has collected expert opinions to support the percentages they provided for nutrient losses from irrigation reuse with non-BNR reclaimed water.

The VAMWA representative on the TAC provided handouts to discuss three major points of objection to the percentages of assumed nutrient loss from irrigation with non-BNR reclaimed water. These points were as follows:

1. Lack of data for percentage of assumed nutrient losses. VAMWA would like to see the scientific data that supports the percentages of nutrient loss.
2. Existing requirements are sufficient to control nutrients. For bulk irrigation, there are at least four layers of controls to manage nutrients, including NMPs, setbacks from irrigation sites, prohibited runoff, and supplemental irrigation rates.
3. Regulated point source discharges are prohibited from adding (deleting) pollutants from DMR-reported values. Discharging facilities with the General VPDES Watershed Permit don't have the ability to add back or delete nutrients from the loads specified in their permits. Unless the VPDES Permit Regulation (9VAC25-31) or the General VPDES Watershed Permit Regulation (9VAC25-820) are amended, such accounting for non-point source nutrient losses added back to discharge loads is viewed as prohibited by VAMWA. This appears to be regulating discharging facilities as non-point sources, which VAMWA objects to and will contest unless every other entity that applies fertilizer is regulated as a non-point source in the same manner.

There may be other mechanisms to regulate the nutrients, such as point/non-point nutrient trading or strategies currently being considered. However, the percentages of nutrient loss currently proposed in section 105 will discourage irrigation reuse.

One TAC member pointed out that the central issue appeared to be accounting for non-point source nutrient losses, which should be addressed in nutrient management plans. A common place used by both DEQ and DCR is needed to account for nutrient losses from irrigation reuse to avoid the potential for double counting. If you address these nutrient losses in both the NMP and separate requirements of the Water Reclamation and Reuse Regulation, double counting could occur. From a policy standpoint, there is a need to account for losses, but from an implementation standpoint, we need to actively encourage water reclamation and reuse. Non-point source nutrient losses should be addressed in NMPs rather than penalize point source dischargers with arbitrary nutrient loss percentages. This may trespass upon the interface between point source and non-point sources of nutrients and create concern about the regulatory handle – possibly setting the wrong precedence.

DCR pointed out that for existing facilities diverting a portion of their discharge to water reuse, specifically irrigation, this will reduce the total load of nutrients going to the Chesapeake Bay. However, for new facilities that do not have a nutrient allocation, irrigation reuse will be an attractive alternative in lieu of purchasing nutrient credits and will be a new and increased non-point source of nutrients.

The TAC discussed MS4 requirements with DCR representatives. A TAC member asked if localities with MS4s would be required to monitor N & P through their stormwater outfalls. EPA is pushing for more monitoring and it may be only a matter of time for nutrients to be monitored at stormwater outfalls. Concern was expressed that if a locality is required to account for monitor nutrients from a stormwater outfall and required to add nutrients back to their wastewater treatment facility discharge due to irrigation reuse with non-BNR reclaimed water, this could result in double counting. The Chesapeake Bay Model is not currently accounting for nutrient inputs from stormwater outfalls of MS4s.

It was suggested that the focus of the TAC's discussion be divided into bulk vs. non-bulk irrigation reuse of non-BNR reclaimed water, and that the assumed percentages of nutrient loss for bulk irrigation reuse, already required to have a NMP, be dropped.

Related to this point, DEQ staff provided some background information to the TAC on work of the TAC's Nutrient subcommittee. For non-bulk irrigation with non-BNR reclaimed water, it was not feasible or practical to require a NMP for every home owner. Therefore, the subcommittee came up

with a requirement for the provider of reclaimed water to track the concentration of N & P in the reclaimed water and calculate the pounds of N & P applied monthly to a specific service area only for non-bulk irrigation reuse of non-BNR reclaimed water. No groundwater monitoring would be required because the results of the monitoring would be confounded by other sources of nutrients in an urban area, such as application of commercial fertilizers, septic drainfield systems, etc. DCR representatives remained concerned regarding overspray of impervious surfaces for non-bulk irrigation with non-BNR reclaimed water.

The question was raised as to whether or not this information could be reported by permittees to address non-point source nutrient losses in lieu of the assumed percentage of nutrient loss. It was suggested that this information could be used to determine if nutrients are being over applied for non-bulk irrigation reuses with the service area. It could also be used in a nutrient balance for the service area and in the end user education program required of the provider that distributes non-BNR reclaimed water. End users could be advised to use less commercial fertilizer based on the pounds of N & P they could expect to receive from irrigation reuse with non-BNR reclaimed water.

DCR representatives acknowledge that of the total percentage of reclaimed water used for irrigation, only a small amount (less than 3 percent) is currently being used for non-bulk irrigation with non-BNR reclaimed water. However, reclamation and reuse offers a great incentive to reduce point source discharges, thereby diverting nutrients to irrigation reuse without upgrades to the wastewater treatment facilities to remove nutrients.

One member of the TAC indicated that the nutrient removal technology of their wastewater treatment facilities would be upgraded regardless of water reuse because non-bulk irrigation reuse will not consume enough water to reduce all or enough of the nutrient load from their point source discharges. Furthermore, most wastewater treatment facilities will go to LOT (level of technology) for nutrient removal, thereby making BNR vs. non-BNR reclaimed water a short term issue.

Another TAC member asked if data should be collected to verify that there are significant nutrient losses from irrigation reuse before imposing percentages of nutrient loss in the regulation?

It was pointed out that non-discharging treatment systems, such as land treatment, mass drainfields, etc., are not being regulated with assumed nutrient losses like irrigation reuse with reclaimed water. Although septic drainfield design and installation have improved, they can still be a significant source of nutrient losses, particularly mass drainfield systems.

The DCR representative indicated that there is no such thing as a diminimus loss of nutrients from any given acreage within Virginia. A dog defecating on the street is not considered diminimus. The Chesapeake Bay can not be cleaned up by focusing only on the large non-point sources of nutrients. Small non-point sources are now being challenged by MS4s. Home owner education is helping to reduce non-point sources of nutrient loss.

A TAC member suggested that for non-bulk irrigation with non-BNR reclaimed water, a percentage of nutrient loss could be applied at some threshold of volume or percent (i.e.,  $\geq 10\%$ ) of effluent diverted from discharge to reclamation and irrigation reuse rather than apply the percentages of nutrient loss to all non-bulk irrigation reuse of non-BNR reclaimed water. The question was raised as to how the appropriate threshold (by volume or percentage) would be established and for facilities of differing treatment capacity.

One TAC member indicated that his facility doesn't have an objection to monitoring nutrients but would have a problem taking nutrients from a diffuse non-point source and adding them to a point source where they are not occurring. A facility could pump reclaimed water for reuse to a site within a

totally different watershed or that drains to a significantly different stream reach. That wouldn't make much sense from a nutrient TMDL perspective.

The issue of accounting for nutrient loss was raised again. DEQ has offered the idea that the nutrient losses could be accounted for through the Chesapeake Bay Model and not through VPDES permits. This might be more appropriate in light of the legal issues that VAMWA has raised regarding the option to add non-point source losses of nutrients back to a point source that is regulated by a VPDES permit. Furthermore, the Model is likely to show that nutrient losses from irrigation reuse are not significant.

DCR representatives indicated that they are more concerned about new facilities coming on line and their contributions of nutrients. Although DCR does not have empirical data to show the non-point source nutrient losses from irrigation reuse with non-BNR reclaimed water, their percentage of nutrient loss from irrigation reuse with non-BNR reclaimed water are based on best professional judgment and expert opinions.

In response to this, some TAC members indicated that sound scientific data should be used to develop regulation. There appeared to be general agreement among most TAC members that it would be more appropriate to first determine if there is a problem through monitoring and data collection before imposing percentages of nutrient losses transferred from irrigation reuse back to point source discharges. If for example, the Chesapeake Bay Model were to demonstrate that with the implementation of reclamation and reuse there is no change or actually an improvement in the Bay's water quality, that might then provide a basis not to account for assumed nutrient losses through VPDES permits.

It was pointed out that the Chesapeake Bay Model is not empirical. Also, if the Model is going to account for nutrient losses from non-bulk irrigation reuse with non-BNR water, shouldn't it also account and give credit for nutrients that will not be lost from bulk irrigation reuse of non-BNR reclaimed water due to improved nutrient use efficiency?

One TAC member pointed out that the current regulation contains an education requirement for individual non-bulk irrigation end users of non-BNR reclaimed water. Through the education program, you are bringing to the attention of home owners the benefits of the nutrients in the reclaimed water to their lawns and gardens. If, however, home owners are told that 20 to 30 % of nutrients they apply via reclaimed water will be lost, this may have the effect of encouraging the home owner to apply more reclaimed water to compensate for nutrients lost that they want delivered to their lawn, garden, etc.

The DCR representative pointed out that most home owners don't use fertilizer on their lawns at all. Through the use of reclaimed water, they are likely to apply nutrients that they were not applying before, thereby increasing nutrient losses. However, the education requirements of non-bulk irrigation with non-BNR reclaimed water will be helpful.

The Virginia Tech representative on the TAC noted that there is a statewide effort through DCR, the Virginia Cooperative Extension Service and Virginia Tech to move into residential lawn and landscaping nutrient management. He also emphasized that reuse of reclaimed water for irrigation will result in a net reduction of nutrients to the Chesapeake Bay.

The issue of inter-basin transfer of nutrients was re-emphasized. The point of accounting for nutrient loss should be at the point of use and not at the source. Nutrient management plans would provide the appropriate mechanism for nutrient accounting at the point of use.

Following a break, DEQ staff summarized major items and suggestions discussed by the TAC regarding accounting of nutrient loss from irrigation reuse with non-BNR reclaimed water. It was

apparent that the accounting issue was more significant for non-bulk than bulk irrigation reuse. Because bulk irrigation reuse with non-BNR reclaimed water is already required by the regulation to have a NMP, most TAC members indicated that no percent loss should apply to bulk-irrigation reuse. In addition to NMP requirements for bulk irrigation, the regulation has other provisions to reduce nutrient losses from all irrigation reuse, bulk and non-bulk. Regarding nutrient losses from non-bulk irrigation with non-BNR reclaimed water, there is apparently no data to support the assumed percentages of nutrient loss. However, DEQ does want to obtain data, if possible, to determine if there is truly significant nutrient loss. Therefore, DEQ would like to establish a committee to study nutrient losses from non-bulk irrigation reuse with non-BNR reclaimed water to determine if percentages of nutrient loss are necessary. The DEQ would need to recommend such a committee and a possible study to the State Water Control Board for their approval before committing to this. When assembling the committee, the DEQ could invite some of the experts that provided opinions to DCR regarding the assumed percentages of nutrient loss for irrigation reuse with non-BNR reclaimed water.

DEQ staff also noted that due to an expected lag in the use of non-BNR reclaimed water for non-bulk irrigation reuse, there is time to do the study without significant short term impacts to the Chesapeake Bay. Although, new communities with new construction are the most likely to install reclaimed water distribution systems for residential end users, there is currently a lack of infrastructure to distribute the reclaimed water to individual residential end users. Furthermore, large industrial, non-irrigation reuses with a year round demand will be the most cost effective end uses for providers of reclaimed water.

There appeared to be general support by the TAC on the concept of a study committee and one TAC member recommended that Dr. Tom Simpson (University of Maryland) serve on the committee. Another TAC member emphasized that because the subject of study (non-bulk irrigation with non-BNR reclaimed water) will not be occurring immediately, DEQ staff should inform the State Water Control Board that data from the study committee may not be immediately available.

The DCR representative indicated that starting with an assumption of no nutrient loss is not accurate or appropriate. DCR's position was that DEQ should strive for some assumed percentage of nutrient loss by starting with a conservative threshold and changing it later once data from the study is available and indicates changes are necessary.

Other TAC members disagreed with this approach. Water reclamation and reuse of reclaimed water will provide an overall benefit to the Chesapeake Bay. Any amount of reclaimed water that is reused will be that much less in the way of nutrients discharged to the Bay. Also, if the focus is on nutrient credits and debits, shouldn't you give credits to bulk irrigation reuse with non-BNR reclaimed water that is required to have a NMP?

DEQ staff noted that the purpose of the committee and study would be to determine if there is a significant nutrient loss from non-bulk irrigation with non-BNR reclaimed water and if so, what would be the appropriate mechanism to address or account for these nutrient losses. DEQ would work with DCR staff and the experts of the committee to address the latter issue.

The TAC briefly discussed the mechanics of nutrient trading and nutrient credits that can be received for water reclamation and reuse. Conducting a study will give DEQ more and better information to determine the amount of nutrient credit a discharging facility should receive that diverts water to reclamation and reuse.

Setbacks and other means to control runoff from non-bulk irrigation reuse were discussed. The DCR representative expressed concern that setbacks for irrigation reuse will eliminate its practical use on residential lawns. DEQ staff explained that setbacks are primarily based on pathogen content of the reclaimed water and not the nutrient content with the exception of setbacks to wells and sinkholes. The latter setbacks consider the presence of other contaminants, including nutrients that would impact

groundwater. Level 1 reclaimed water, the more highly treated reclaimed water, is required for irrigation reuse on residential lawns and requires no setbacks to houses or streets.

The DCR representative expressed further concern that no setbacks to impervious surfaces in this situation will increase the potential for runoff and inquired as to how this end use would be controlled. A TAC member explained that the regulation requires providers of reclaimed water to establish a service agreement or contract with each end user. The service agreement provides a means of monitoring end users to determine if there is abuse or mismanagement. DEQ staff added that service agreements or contracts between the provider and end users are to specify the proper use/management of the reclaimed water by the end user. The provider of the reclaimed water can terminate service of reclaimed water to the end user when the end user does not abide by the terms of their service agreement. This is another mechanism in the regulation to prevent or address abuses of reclaimed water.

DEQ staff asked the TAC if there was consensus on eliminating the assumed percentages of nutrient loss for bulk irrigation with non-BNR reclaimed water. Although DCR representatives of the TAC indicated that they needed to give this proposal more consideration, the remainder of the TAC appeared to support it.

DEQ staff summarized this discussion and other important points made earlier in the meeting by the TAC. No one disagreed with the idea of conducting a study to determine the degree of nutrient loss from non-bulk irrigation with non-BNR reclaimed water. Non-bulk irrigation reuse is likely to increase in the future and nutrient losses if significant from this reuse will need to be addressed through policy and science. However, the TAC did not decide if assumed percentage of nutrient losses for this reuse should also be eliminated at this time. In the near term, it is expected to make up only a small percentage of reuse. If a default percentage is maintained, TAC members expressed objection to DEQ going back into their general permits to add back nutrient loads to their discharge and potentially for reuses in another watershed. Still, nutrient losses may need to be tracked. DEQ staff then asked the TAC if some percentage of assumed nutrient loss should be maintained in the regulation for non-bulk irrigation with non-BNR reclaimed water.

Some TAC members questioned the need for the assumed percentage of nutrient losses for non-bulk irrigation with non-BNR. The DCR representative on the TAC indicated that the percentages would provide values that could be used to calculate nutrient credits for trading. DEQ staff pointed out that nutrient trading as specified in the General VPDES Watershed Permit (9VAC25-820) is based on State Water Control Law. The law, in turn, requires that nutrient credits be based on what nutrients go out the discharge pipe relative to the facility's nutrient allocation. The law or regulation does not calculate nutrient credits for nutrient applied to land by irrigation. Based on this discussion, DEQ staff emphasized again that non-point source nutrient losses from non-bulk irrigation reuse with reclaimed water would be better addressed in the Chesapeake Bay Model.

Nutrients discharged by MS4s were briefly discussed. DCR issues the permits for MS4s. However, there appears to be no mechanism within MS4 permits to regulate nutrient loads (i.e., no nutrient load limits).

DEQ staff asked the TAC where they thought non-point source nutrient losses from non-bulk irrigation reuse with non-BNR reclaimed water should be addressed. Some TAC members recommended no percentages of assumed nutrient loss. There was no data provided to support them and the benefits of bulk irrigation with reclaimed water would offset the nutrient losses from non-bulk irrigation with reclaimed water. It is not appropriate to add these percentages of assumed nutrient loss to the nutrient loads a facility must report through the General VPDES Watershed Permit (9VAC25-820).

DEQ staff pointed out that new facilities with no allocation within the Chesapeake Bay watershed will likely treat to BNR to reduce the nutrient load that they would need to offset in order to discharge. Therefore, the issue of nutrient losses from non-bulk irrigation with non-BNR water would be expected to become increasingly insignificant.

The TAC discussion focused again on the study of nutrient loss for non-bulk irrigation with non-BNR reclaimed water. DEQ staff indicated that the study would need to have a science component and policy component. If the study establishes that there is a need for the percentage of nutrient loss from non-bulk irrigation reuse with non-BNR reclaimed water, the study will also need to determine where to account for the percentage of nutrient losses. The composition of the committee to conduct the study will likely not be TAC members with some exceptions.

DEQ staff solicited sources of funding for the study from the TAC. Possible funding sources suggested included WERF, AWWARF, or the WateReuse Foundation.

The Virginia Tech representative of the TAC suggested the Mid-Atlantic Water Program to provide funding for and to conduct the study. The Mid-Atlantic Water Program (Program) does a variety of projects on water policy, education, etc., and would likely be interested in just such a study. The Program includes faculty from every land grant institution within EPA Region III and has its own funding, allowing members to work independently. The Program could write the study into their next funding proposal to USDA. The study could consist of a literature review to collect existing data and field studies. The proposal must be submitted in the spring to get funding by the fall. He indicated that he would be glad to forward this study to Dr. Tom Simpson, a member of the Program, for consideration to include in the Program's next grant submission due this April. If the Program is interested in such a study, he would be willing to come back to the TAC or individuals of the TAC for ideas on what is important to address in the study.

DEQ staff indicated that this would be a great opportunity to address the science component of the study. DEQ and DCR staff will need to look at the policy component in the context of improving the state of the Chesapeake Bay.

Another TAC member suggested the National Irrigation Association and the Center for Irrigation Technology as other, additional sources of technical information and possible data that might be helpful in the study.

DEQ staff indicated that they will consider comments of the TAC to develop recommendations for the DEQ Director. The TAC will not be reconvened. The TAC will be notified by e-mail of DEQ's recommendations to the Board regarding Section 105 once the recommendations are sent to the Board. DEQ would like to submit recommendations to the Board for their next meeting to be held in March 2008.

The TAC meeting was adjourned at approximately 12:00 p.m.